CLAIMS:

1. An internal drum scanning system comprising

- a cylinder (101) having a centre axis (104; 1801) and an inner surface (102) providing an imaging surface to be scanned by at least two laser beams (117,127; 606,607; 1405,1406; 1509,1510; 1841,1842);
- at least one laser source (111, 121) for generating a first and a second laser beam;
- a deflector (103; 1806), mounted rotably relative to said cylinder around the centre axis of the cylinder, for deflecting said first and second laser beams towards said imaging surface;
- a first focussing lens (109; 1805) for focussing said first and second laser beams onto respective first and second positions (106a,106b,106c,106d) on said imaging surface;
- a first controllable optical element (116,126; 1414; 1508; 1812) adapted to control the direction of the second laser beam to maintain, during relative rotation between the deflector and the cylinder, the second position fixed relative to the first position

characterised in

that the first focussing lens defines a first optical axis (118; 1801) being imaged by said deflector onto a centre position on the imaging surface; that, during operation, the first controllable optical element is positioned such that its optical axis is displaced at a radial distance from said first optical axis; and that the first controllable optical element is adapted to direct the second laser beam onto said first focussing lens at a varying incident angle causing the first focussing lens to image the second laser beam onto the second position such that, during relative rotation between the deflector and the cylinder, the second position is fixed relative to said centre position.

2. An internal drum scanning system according to claim 1, wherein the first controllable optical element is mounted movably around the first optical axis of the first focussing lens.

3. An internal drum scanning system according to claim 2, wherein the first controllable optical element comprises a collimator lens or a second focussing lens.

4. An internal drum scanning system according to any one of claims 1 through 3, wherein the first controllable optical element is mounted movably around a second optical axis; and wherein the internal drum scanning system further comprises means for adjusting the position of the first controllable optical element to cause the first controllable optical element to move around the second optical axis at a predetermined frequency.

5. An internal drum scanning system according to claim 4, wherein the second optical axis is positioned at a radial distance from the first optical axis.

6. An internal drum scanning system according to any one of claims 1 through 5, wherein the first focussing lens is positioned relative to the deflector such that the optical path length from the first focussing lens to the imaging surface is substantially equal to the focal length of the first focussing lens.

7. An internal drum scanning system according to any one of claims 1 through 6, wherein the deflector comprises a first deflection area for deflecting the first laser beam and a second deflection area for deflecting the second laser beam.

8. An internal drum scanning system according to any one of claims 1 through 7, further comprising means for polarising the first and a second laser beam; and means for polarization coupling the second laser beam generated by the first controllable optical element with the first laser beam resulting in a combined laser beam.

9. An internal drum scanning system according to any one of claims 1 through 7, further comprising a second controllable optical element disposed at a radial distance from said first optical axis; and that the second controllable optical element is adapted to direct the first laser beam onto said first focussing lens at an incident angle causing the focussing lens to image the first laser beam onto the first position such that the first position is fixed relative to said centre position.

10. An internal drum scanning system according to any one of claims 1 through 9, wherein the internal drum scanning system comprises means for generating at least three laser beams; and the internal drum scanning system comprises at least two controllable optical elements, each disposed at a corresponding radial distance from said first optical axis; and wherein each of the controllable optical elements is adapted to direct a corresponding one of the at least three laser beams onto said focussing lens at a corresponding incident angle causing the focussing lens to image the corresponding laser beam onto a corresponding position such that, during relative rotation between the deflector and the cylinder, the corresponding position is fixed relative to said centre position.

11. An internal drum scanning system according to any one of claims 1 through 10, further comprising a detector arrangement for detecting a relative position of the first and second positions on the imaging surface, and a control unit for controlling the controllable optical element, where the control

system is adapted to receive a position signal from the detector arrangement, and to control the adjustable element based on the received position signal.

12. An internal drum scanning system according to claim 11, wherein the detector arrangement is positioned such that it receives at least a part of the first and second laser beams after the first and second laser beams have passed the deflector.

13. An internal drum scanning system according to claim 12, wherein the detector arrangement comprises a position sensitive detector disposed on the inner surface of the cylinder, the position sensitive detector being adapted to detect the position of a focal spot in a direction along the centre axis of the cylinder.

14. An internal drum scanning system according to claim 12 or 13, wherein the detector arrangement comprises a light detector disposed on the inner surface of the cylinder arranged to detect the a relative phase of the rotation of a focal pot around the centre axis of the cylinder.

15. An arrangement for mounting an optical element movably within a predetermined plane relative to the optical element, the arrangement comprising

- an optical element;
- a number of elongated rods extending from the optical element in a direction substantially perpendicular to the direction of the predetermined plane;
- a housing to which the elongated rods are connected;

wherein at least a first one of said number of rods constitutes a first controllable bender element for causing the optical element to perform a movement in substantially the predetermined plane.

16. An arrangement according to claim 15, wherein a second one of said rods constitutes a second controllable bender element for causing the optical element to perform a movement in substantially the predetermined plane, and wherein the first and second bender elements are connected to the optical element at respective first and second connection points of the optical element, the first and second connection points being located on opposite sides within the predetermined plane of a centre position of the optical element.

17. An arrangement according to claim 15 or 16, wherein the bender element is 2D bender element adapted to cause movements along two directions within the predetermined plane.